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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,173	04/09/2004	Masachika Masuda	DAIN:768	8404
25944	7590	12/12/2006	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			KIM, SU C	
			ART UNIT	PAPER NUMBER
			2823	

DATE MAILED: 12/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/821,173	MASUDA ET AL.	
	Examiner	Art Unit	
	Su C. Kim	2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2006.
- 2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) 5-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### **Remark**

1. Applicant's elected Group I and species I (claims 1-8) in the response to Election Restriction filed on 9/29/2006. However, claims 5-8 are non-elected invention by Restriction Requirement on the Election Restriction requirement mailed on 8/8/2006. To clarify issue, the examiner contacted Mr. Joel S. Armstrong and confirmed that claims 5-8 are non-elected invention on 12/8/2006. Therefore, Applicants elected Group I and Species I (claims 1-4) with traverse.

### **Election/Restrictions**

2. Claims 5-8, 21-23, 32-34 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 9/29/2006.

3. Claims 5-8 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 9/29/2006

4. In the response, Applicant's election with traverse of Restriction requirement (Group I and Group II), in the reply filed on 9/29/2006 is acknowledged. The traversal is on the ground(s) that a search and examination of the entire application would not place

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a serious burden on the examiner. This is not found persuasive because Group I (claims 1-4, 9-20 and 24-31) is drawn to method, and Group II (claims 5-8, 21-23, 32-34) is drawn to device. Method and device are classified in two different classes, and two different search areas. Even though there is an overlapping in the search areas, additional search has to be done for each specific group. Therefore, a burden would be placed examining all groups of claims upon the examiner.

5. Furthermore, Applicants' election with traverse of Species I (i.e., claims 1-8) in the response filed on 9/29/2006 is acknowledged. The traversal is on the ground(s) that "no specific election required." This is not found persuasive.

A restriction requirement between patentably distinct species claims was issued in the Office action that was mailed on 9/29/2006. "Section 121 [of Title 35 USC] permits a restriction for "independent and distinct inventions." Although 37 CFR §1.141 provides that a reasonable number of species may still claimed in one application, it is still proper to restrict claims of different species as long as the Examiner shows *prima facie* case of a serious burden and appropriate explanation of separate classification, or separate status in the art, or a different field of search. For instance, "a semiconductor device supported by the leads frame" as claimed in claim 13 page 3, lines 21 and "half-etching process" as claimed in claim 22 page 5 lines 3.

Such distinct process & limitation require an independent search form one another which causes a great burden to the Examiner and it acquired different field of search and that, as a result, a restriction was necessary. An explanation was provided

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in the restriction requirement. Specifically, in addition to being burdensome, the examiner indicated that restriction is proper because different species in the claims are required "different field of search."

The criteria of distinctness and burdensomeness have been met, as demonstrated hereinabove. Accordingly, the restriction requirement in this application is still deemed proper and is therefore **made FINAL**.

### ***Specification***

6. The disclosure is objected to because of the following informalities: "LSI" please specifies the meaning of "LSI", i.e. chemical vapor deposition (CVD).

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fee et al. (US 6876066) in view of Chun-Jen et al. (US 6337510)

Pertaining claims 1, Fee discloses a plurality of terminal members each having an outer terminal (Fig. 10B, 134a) having an upper surface (Fig. 10B, top surface of 134a), a lower surface (Fig. 10B, bottom surface of 134a) and an outer side surface

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(Fig. 10B, side surface of 134a), an inner terminal (Fig. 10B, an area of 132a) having a contact surface (Fig. 10B, 132a), and a connecting part (Fig. 10B, 130a) connecting the outer and the inner terminal;

a semiconductor device (Fig. 10B, 160) provided with terminal pads (Fig. 10B, 107) connected to the contact surfaces of the inner terminals (Fig. 10B, 132a) with bond wires (Fig. 10B, 175); and a resin molding sealing the terminal members (Fig. 10B, 180), the semiconductor device (Fig. 10B, 160) and the bond wires (Fig. 10B, 175) therein;

the contact surfaces of the inner terminals, the upper surfaces of the outer terminals, the lower surfaces of the outer terminals of the terminal members are included in planes (Fig. 10B, lead frame is in plane shape), respectively, and the upper, the lower and the outer side surfaces of the outer terminals of the terminal members, and a surface of the semiconductor device opposite the surface provided with the terminal pads are exposed outside (Fig. 10B, the surface of 160 is exposed outside of resin 180), and the inner terminals, the bond wires, the semiconductor device and the resin molding are included in the thickness of the outer terminals (Fig. 10B).

However, Fee fails to disclose the inner terminals of the terminal members are thinner than the outer terminals and have the contact surfaces.

Chen-Jen discloses the inner terminals of the terminal members (Fig. 4, 222) are thinner than the outer terminals (Fig. 4, 220) and have the contact surfaces (Fig. 4, 222).

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Therefore, it would have been obvious to one of ordinary skill in the art at the time of applicant(s) claimed invention is made to provide Fee reference with the inner terminals of the terminal members are thinner than the outer terminals and have the contact surfaces taught by Chen-Jin in order to increase stability of die by molding resin 240 (Column 3, lines 49-52).

Regarding claim 2, as applied to claim 1 above, Fee and Chen-Jin in combination disclose all the limitations includes, the outer terminal of each terminal member has cur part on the outer side surface (Chen-Jin, 225 or Fee, 186)

Regarding claim 3, as applied to claim 1 above, Fee and Chen-Jin in combination disclose all the limitations includes, each terminal is formed or Cu, a Cu-base alloy or a Fe-Ni alloy containing 42% Ni (Chen-Jin, column 3, line 1)

Regarding claim 4, as applied to claim 1 above, Fee and Chen-Jin in combination disclose all the limitations includes, coating at least portion of lead frame selected from a solder, gold, silver, palladium and tin layer (Fee, column 5, lines 1-4, plated at least a portion of the lead frame with gold silver, palladium)

### ***Conclusion***

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Su C. Kim whose telephone number is (571) 272-5972. The examiner can normally be reached on Monday - Thursday, 9:00AM to 7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Smith can be reached on (571) 272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Su C. Kim  
12/09/2006

*Brook Kebede*  
BROOK KEBEDE  
PRIMARY EXAMINER